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THE PROGRESS OF SCIENCE

THE ORGANIZATION OF INDUSTRY AND OF SCIENTIFIC RESEARCH

IN the United States, as well as in England, steps are being taken toward a more effective organization of industrial and scientific work. A Council of National Defense was established by the congress at the close of its session and the president has now announced the appointment of an advisory commission to consist of Daniel Willard, president of the Baltimore and Ohio Railroad; Samuel Gompers, president of the American Federation of Labor; Dr. Franklin H. Martin, of Chicago; Howard E. Coffin, of Detroit; Bernard Baruch, of New York; Hollis Godfrey, of Philadelphia, and Julius Rosenwald, of Chicago.

With these appointments the president gave out a statement in which he said:

The Council of National Defense has been created because the congress has realized that the country is best prepared for war when thoroughly prepared for peace. From an economic point of view there is now very little difference between the machinery required for commercial efficiency and that required for military purposes. In both cases the whole industrial mechanism must be organized in the most effective way. Upon this conception of the national welfare the council is organized, in the words of the act, for "the creation of relations which will render possible in time of need the immediate concentration and utilization of the resources of the nation." The organization of the council likewise opens up a new and direct channel of communication and co-operation between business and scientific men, and all departments of the government, and it is hoped that it will, in addition, become a rallying point for civic bodies working for the national defense.

At the same time the National Research Council, to the plans for which attention was called in the September issue of the MONTHLY, has been organ-

ized under the auspices of the National Academy of Sciences. Some forty members have been appointed with Dr. George E. Hale, director of the Mt. Wilson Solar Observatory, as chairman, Dr. Cary T. Hutchinson, secretary of the Engineering Foundation, as secretary, and Dr. J. J. Carty, chief engineer of the American Telephone and Telegraph Company, as chairman of the executive committee. Special committees have been appointed to report on research in educational institutions, on the promotion of industrial research, on a national census of research, and on other subjects. The National Council is fortunate in having brought together engineers and those engaged in laboratory research, men in the industries, in the universities, in the research foundations and in the government service.

With the Naval Consulting Board we thus have three advisory councils or committees appointed under government auspices with a view to "preparedness." As the president states "the country is best prepared for war when thoroughly prepared for peace," and it would probably be wise for the Research Council of the National Academy to abandon the direct reference to war under which it was created and to confine its efforts to improving the conditions under which scientific research can be undertaken in this country, more especially in the direction of establishing fruitful relations between workers in the so-called "pure" sciences and in the industries.

In Great Britain the first annual report of the Committee of the Privy Council for Scientific and Industrial Research has been issued. The main body of the report is supplied by the advisory council of the committee, of which Sir William McCormick is chairman. After a brief account of the existing institutions for the scientific study of trade

problems, the council goes on to say that other machinery and additional state assistance are absolutely necessary for the purpose. But it needed the shock of the war to make this manifest. The council decided first of all to save as many as possible of the researches which were being conducted before the war and were in danger of abandonment, and recommended the payment of a series of grants. They also have under consideration the possibility of inducing firms in at least some of the industries to assist the progress of research by informing them in confidence of the problems they have in hand or in contemplation. The universities, it is contended, can and must be the main sources of research in pure science, the discoveries in which lie at the root of all practical and technical applications. But they will not be able to do their fair share unless they can attract more students and larger funds.

President Wilson in appointing the advisory board remarks: "In the present instance, the time of some of the members of the advisory board could not be purchased. They serve the government without remuneration, efficiency being their sole object and Americanism their only motive." It may, however, be questioned whether service without remuneration promotes efficiency. The English committee of the Privy Council is doubly amateurish, not consisting of scientific men and not being paid. This may be in accord with aristocratic traditions, but in a democracy men should be paid the value of their services. Advice given without charge and without responsibility is usually worth no more than it costs.

But these various advisory scientific and industrial commissions are important as indicating an awakening of public interest to the place of science under the government. It may be that in due time the scientific and expert functions of the government will be recognized as coordinate with its legislature, executive and judicial departments. A supreme court to interpret the "laws of nature" is not required, but we do need a paid

board of scientific men, as far removed from prejudice and politics as the justices of the supreme court should be, and as expert in science as they are in the law, whose decision on questions of scientific policy and scientific appointments should be final within the limits of the laws and the appropriations passed by the congress.

PROGRESS IN THE MAPPING OF THE EARTH

In his presidential address before the Geographical Section at the recent meeting of the British Association for the Advancement of Science Mr. Edward A. Reeves described the progress that has been made in surveying and mapping the earth since 1880, and there are here reproduced two maps which were presented at the meeting.

The maps are drawn on an equal area projection, that is to say, a certain area on the map, such as a square inch, everywhere represents the same area on the earth's surface. The idea kept in view in drawing the maps is that the shade deepens as the accuracy of the surveys increases. (1) The parts that are topographically mapped from triangulation or rigorous traverses are shown by the darkest tint; (2) those that are less accurately mapped from surveys chiefly non-topographical, and of which in many places the basis consists to a great extent of disconnected land-office and property plans, are shown by the tint next in density; and then the next lightest tint (3) represents the parts of the world that are only mapped from route-surveys or rough traverses of explorers. Although these traverses vary greatly in degree of accuracy, they can not be considered so reliable as the surveys shown by either of the other two shades, and in many cases the mapping consists of the roughest sketches. (4) The regions that are entirely unsurveyed and unmapped are indicated by the lightest tint of all, almost white.

Referring to the state of surveys in the Eastern Hemisphere in 1860, it will be seen that outside the continent of